STATEMENT OF CONSIDERATIONS

REQUEST BY PRAXAIR, INC. FOR AN ADVANCE WAIVER OF DOMESTIC AND FOREIGN INVENTION RIGHTS UNDER SUBCONTRACT QZ001 UNDER DOE COOPERATIVE AGREEMENT NO. DE-FC26-00NT40795; W(A)-00-025, CH-1040

The Petitioner, Praxair, Inc. (Praxair), is a subcontractor to Siemens Westinghouse under this cooperative agreement for the performance of work entitled, "Zero Emissions Power Plants Using SOFC and Oxygen Transport." The objective of this program is to develop the technology that will enable development of zero emission Vision 21 power plants based on solid oxide fuel cells (SOFCs) and ceramic oxygen transport membranes (OTM). As explained in response to question 2, Praxair intends to modify the design of the tubular SOFC module to incorporate an afterburner stack of tubular oxygen transport membranes. Praxair's principal role in this program is the development of the OTM technology. Praxair will also partner with Siemens Westinghouse on the conceptual design of the zero emissions SOFC/OTM modules, particularly in the design of the OTM afterburner, and develop start-up and shutdown protocols for the afterburner. This waiver is only for inventions of Praxair. Siemens Westinghouse has not requested an advanced patent waiver.

The total estimated cost of the cooperative agreement is about $3,084,061, over a period of two and one half years, from June 2, 2000 through November 30, 2002. An attached e-mail from Praxair indicates the cost of its subcontract is $2,137,081, and that it is cost sharing 25% or $534,271. The total overall cost share of the cooperative agreement with Siemens Westinghouse is also 25%, or 772,953; thus the DOE share of 75% is $2,311,108.

In its response to questions 4 and 5 of the attached waiver petition, Praxair indicates that it is technically competent in the field of ceramic membrane technology and OTM materials. Praxair is the largest domestic oxygen producer and a technical leader of applied combustion technology. Its ceramic membrane experience includes: powder synthesis; Element fabrication; coating technologies; materials; process cycles; OTM reactor design; alliance program; vertical integration; carbon dioxide purification; and, purification utilizing oxidative reactions. A list of

Praxair owned or licensed patents related to OTM membranes is attached to the waiver petition as Appendix A. In addition to these patents, Praxair has detailed its Ceramic membrane experience and described its established commercial position in this market. Praxair's responses to questions 4 and 5 thus demonstrate its competency and experience in commercializing new technologies, and that this experience will enhance the potential for successful development and commercialization of technologies for solid oxide fuel cells and ceramic oxygen transport membranes.

From its response to questions 8 and 9, Praxair it appears that grant of the waiver will more efficiently promote the development and commercialization of inventions made under the cooperative agreement and will provide Praxair with the incentive to invest in the development and commercialization of the technology. Based on its petition it also appears that grant of the waiver will not decrease competition, cause undesirable market concentration, or place Praxair in a dominant position. There are five major Worldwide industrial gas suppliers, including the petitioner, and each firm has development programs in ceramic membranes. Therefore, grant of the waiver will increase Praxair's incentive to rapidly commercialize the technology and create new OTM technology.

The subject cooperative agreement will be modified to add the Patent Rights--Waiver clause in conformance with 10 CFR 784.12. This waiver clause will also include a paragraph entitled U.S. Competitiveness, in which Praxair agrees to substantial U. S. manufacture of subject inventions (attached hereto). Additionally, Praxair agrees not to transfer subject inventions to any other entity unless that other entity agrees to these same requirements. The petitioner has further agreed to modification of the data clause of the subject subcontract (48 C.F.R. 952.227-14) by adding paragraph (k), Alternative VI, concerning contractor licensing of data.

Considering the foregoing, it is believed that granting the waiver will provide the Petitioner with the necessary incentive to invest resources in the commercialization of the results of the agreement in a fashion which will make the agreement's benefits available to the public in the shortest practicable time. In addition, it would appear that grant of the requested waiver will not result in an adverse effect on competition nor result in excessive market concentration. Therefore, in view of the objectives and considerations set forth in 10 CFR 784, all of which have been considered, it is recommended that the requested waiver, as set forth above, be granted.

Mark P. Dvorscak
Assistant Chief Counsel
Office of Intellectual Property Law

Date Sept. 16, 2002

Based on the foregoing Statement of Considerations and the representations in the attached waiver petition, it is determined that the United States and the general public will best be served by a waiver of rights and consent to assignment of the scope described above, and therefore the waiver is granted. This waiver shall not apply to any modification or extension of this agreement, where through such modification or extension, the purpose, scope, or cost of the agreement is substantially altered.

CONCURRENCE:

George Rudins FE-20
Deputy Assistant Secretary
for Coal and Power Systems

Date: 10/23/02

APPROVAL:

Paul A. Gottlieb
Assistant General Counsel
for Technology Transfer and
Intellectual Property

Date: 10-28-02

(t) U. S. COMPETITIVENESS

The Contractor agrees that any products embodying any waived invention or produced through the use of any waived invention will be manufactured substantially in the United States unless the Contractor can show to the satisfaction of the DOE that it is not commercially feasible to do so. In the event the DOE agrees to foreign manufacture, there will be a requirement that the Government's support of the technology be recognized in some appropriate manner, e.g., recoupment of the Government's investment, etc. The Contractor agrees that it will not license, assign or otherwise transfer any waived invention to any entity unless that entity agrees to these same requirements. Should the Contractor or other such entity receiving rights in the invention undergo a change in ownership amounting to a controlling interest, then the waiver, assignment, license, or other transfer of rights in the waived invention is suspended until approved in writing by the DOE.